



US005788178A

[11] Patent Number: 5,788,178

[45] Date of Patent: Aug. 4, 1998

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[57]

#### ABSTRACT

A small caliber laser-guided bullet having a self-contained guidance system is disclosed including on-board laser sensors and navigational circuits capable of detecting a laser target signature, determining the deviation of the bullet from an optimum projectory along which the bullet would impact a hostile target, and generating an electrical signal to piezo electric steering control surfaces to effect a change in the course of the bullet. The guided bullet utilizes a plurality of symmetrically-arranged laser sensor elements which are positioned about a longitudinal axis of the bullet. The laser sensor elements function to transmit optical radiation from the laser target beam to photo detector elements housed within the bullet. The electrical signals from the photo detector elements are then amplified and processed by semiconductor logic circuits to produce the functions required by the steering control surfaces to translate the bullet to the optimum trajectory. Electrical power for the guidance system is provided by a miniature lithium-polymer battery which is interconnected with the navigational circuits to produce the functions of the system. The guided bullet is fired from a precision, smooth bore weapon using a conventional expanding gas cartridge and is effective at ranges up to 3,000 meters and beyond.

16 Claims, 11 Drawing Sheets

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Jc598 U.S. P10  
09/436387  
11/01/99

# United States Patent [19]

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[54] GUIDED BULLET

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[21] Appl. No.: **888,425**

[22] Filed: **Jul. 7, 1997**

## Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 660,700, Jun. 5, 1996,  
abandoned.

[60] Provisional application No. 60/002,608 Jun. 8, 1995.

[51] Int. CL<sup>6</sup> ..... **F41G 7/22**

[52] U.S. Cl. .... **244/3.11; 244/3.21; 244/3.24;**  
102/501

[58] Field of Search ..... **244/3.11, 3.13,**  
**244/3.15, 3.16, 3.21, 3.24; 102/293, 501**

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